

Decline in *Salmonella* Deaths in the United States? Data from the Foodborne Diseases Active Surveillance Network and the National Death Index, 1996-2000

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Background In 1999, it was estimated that each year 1.4 million persons are infected with *Salmonella* in the United States, resulting in approximately 600 deaths. Deaths account for the majority of the economic burden of *Salmonella* infections. The Foodborne Diseases Active Surveillance Network (FoodNet) began ascertaining laboratory-confirmed *Salmonella* infections and deaths in five states in 1996 (pop. 14.4 million). The surveillance areas in these states increased to 11% of the US population in 2001 (pop. 30.5 million).

Methods Deaths due to *Salmonella* were extracted for the original five FoodNet sites and from the NCHS National Death Index (NDI) which contains data from all death certificates in the United States. *Salmonella* serotype Typhi cases were excluded. Death rates and case-fatality rates were calculated and a negative binomial regression model was applied to analyze the changes in incidence of *Salmonella* deaths and case-fatality rates over time.

Results FoodNet ascertained 13,156 cases of *Salmonella* in the five original sites from 1996-2000. Overall, information on whether or not a case patient died was available for 69% of the cases. There were 52 deaths in the five FoodNet sites from 1996-2000 for an average yearly death rate of 0.52 deaths per million. The crude incidence for *Salmonella* deaths decreased from 0.49 per million in 1996 to 0.43 per million in 2000. There were too few *Salmonella* deaths in the five original FoodNet sites to ascertain a change in death rate or case-fatality rate. There were 367 deaths from *Salmonella* in the entire United States recorded in NDI from 1996-2000 for an average yearly death rate of 0.23 per million. Rates of death from *Salmonella* from the NDI declined from 0.39 per million population in 1996 to 0.18 per million in 2000 for an overall decline of 86% (p value <.01).

Conclusions Although not evident in FoodNet data from the five original sites, there appears to be a modest decline in the number of deaths reported from *Salmonella* nationally. Further studies are needed to determine whether this apparent decline in deaths is the result of a decline in case-fatality rate or a decline in incidence of salmonellosis.